

CLAIMS

1. A fluid-operated valve comprising:
  - a valve housing;
  - a first valve chamber and a second valve
  - 5 chamber formed in said valve housing and communicating
  - with each other through a through-hole;
  - a first cylinder chamber formed adjacent
  - to said first valve chamber in said valve housing;
  - a first piston accommodated in said first
  - 10 cylinder chamber so as to be slidable therein;
  - a valve body positioned in said second
  - valve chamber and adapted to come into contact with or
  - move away from said valve seat formed at the edge of said
  - through-hole to thereby establish or shut off
  - 15 communication between said first valve chamber and said
  - second valve chamber;
  - a valve stem extending through said
  - through-hole and said first valve chamber and having one
  - end connected to said first piston and the other end
  - 20 connected to said valve body;
  - an annular diaphragm having an inner
  - peripheral portion fixed to a peripheral surface of said
  - valve stem and an outer peripheral portion fixed to an
  - inner peripheral surface of said first valve chamber; and
  - 25 a spring for urging said first piston away
  - from said first valve chamber to bring said valve body
  - into contact with said valve seat,
  - wherein, by supplying the working fluid into
  - one of spaces separated from each other in said first
  - 30 cylinder chamber by said first piston which one space is
  - far from said first valve chamber, said first piston is
  - moved toward said first valve chamber to move said valve
  - body away from said valve seat, thereby allowing the
  - fluid to flow between said first valve chamber and said
  - 35 second valve chamber.
2. The fluid-operated valve according to claim 1,  
wherein a pressure-receiving area of said diaphragm for

receiving the pressure of the fluid in said first valve chamber is designed to be larger than that of said valve body.

3. The fluid-operated valve according to claim 1,  
5 further comprising a second cylinder chamber formed adjacent to said first cylinder chamber on the side thereof far from said first valve chamber in said valve housing, a second piston accommodated in the second cylinder chamber so as to be slidable therein, and an  
10 adjustment screw extending through said second piston and said second cylinder chamber so that one end thereof is positioned in said first cylinder chamber and the other end thereof is positioned outside the valve housing, said adjustment screw mounted on said second piston so that  
15 the amount of projection from said second piston can be adjusted, wherein, by supplying the working fluid into one of spaces separated from each other in said second cylinder chamber by said second piston which one space is far from said first cylinder chamber, said one end of  
20 said adjustment screw is brought into contact with said first piston to move said first piston toward said first valve chamber, thereby moving said valve body away from said valve seat.

4. The fluid-operated valve according to claim 2,  
25 further comprising a second cylinder chamber formed adjacent to said first cylinder chamber on the side thereof far from said first valve chamber in said valve housing, a second piston accommodated in the second cylinder chamber so as to be slidable therein, and an  
30 adjustment screw extending through said second piston and said second cylinder chamber so that one end thereof is positioned in said first cylinder chamber and the other end thereof is positioned outside the valve housing, said adjustment screw mounted on said second piston so that  
35 the amount of projection from said second piston can be adjusted, wherein, by supplying the working fluid into one of spaces separated from each other in said second

cylinder chamber by said second piston which one space is far from said first cylinder chamber, said one end of said adjustment screw is brought into contact with said first piston to move said first piston toward said first valve chamber, thereby moving said valve body away from said valve seat.

5           5.    The fluid-operated valve according to claim 1, wherein said second valve chamber is formed in the bottom portion of said valve housing.

10           6.    The fluid-operated valve according to claim 2, wherein said second valve chamber is formed in the bottom portion of said valve housing.

15           7.    The fluid-operated valve according to claim 3, wherein said second valve chamber is formed in the bottom portion of said valve housing.